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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,004	03/11/2002	Thomas Paul Feist	08CN8803-26	4708
23413	7590	04/26/2006	EXAMINER	
CANTOR COLBURN, LLP			BERNATZ, KEVIN M	
55 GRIFFIN ROAD SOUTH			ART UNIT	
BLOOMFIELD, CT 06002			PAPER NUMBER	
			1773	

DATE MAILED: 04/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/063,004

Applicant(s)

FEIST ET AL.

Examiner

Kevin M. Bernatz

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Upon reconsideration and partly in view of the deficiencies noted by the Board of Patent Appeals in the remand of March 22, 2006, the finality of the rejection of March 4, 2004 is withdrawn and prosecution reopened. An office action on the merits follows below.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Examiner's Comments***

3. As per the interview summary of September 14, 2004, the Examiner notes that the clause "that has a thickness of about 0.8 mm to about 2.5 mm" pertains to the substrate and is not construed as part of the "when-then" clause. Appropriate clarification in the language of the claim is suggested.

### ***Claim Rejections - 35 USC § 103***

4. Claims 1, 7 – 11, 18, 21, 22, 29 – 32 and 37 – 441 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandstrom (U.S. Patent No. 5,972,461) in view of Manabu et al. (JP 63-056832 A). See provided JPO Abstract translation and the English language translation of JP '832 A.

Regarding claim 1, Sandstrom discloses a storage media for data, comprising a substrate (*Figure 1, element 12*) comprising a polymeric material required to possess good dimensional stability (*col. 7, lines 4 – 14*) and a data layer on the substrate (*Figure 1, element 18 and col. 7, line 55 bridging col. 8, line 58*), wherein the data layer can be at least partly read from, written to, or a combination thereof by an energy field (*col. 1, line 9 bridging col. 2, line 16*), and when the energy field contacts the storage medium, the energy field is incident upon the data layer before it could be incident upon the substrate (*Figure 1 and definition of “air incident” recording*), and wherein the storage media has a thickness of about 0.8 to about 2.5 mm (*col. 7, line 55 bridging col. 8, line 58: 1.5-2.5 mm thick substrate and negligibly (<0.1 mm) thick additional layers*).

Sandstrom fail to disclose using a substrate meeting applicants’ claimed material limitations.

However, as acknowledged by the Board of Patent Appeals and Interferences, Manabu et al. teach that substrates meeting applicants’ claimed material limitations are known in the art to produce magneto-optical disks with excellent adhesion between the substrate and subsequently deposited layers, excellent environmental resistance and excellent dimensional stability (which the Examiner notes is explicitly taught as desirable by Sandstrom) (*JPO Abstract and English translation, page 6, line 2 bridging page 7, line 1 and page 9, lines 16 – 18: the Examiner notes that page 9, lines 16 – 18 is deemed to be equivalent to teaching that the resin is in a single phase*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant’s invention to modify the device of Sandstrom to utilize a substrate

meeting the claimed material limitations as taught by Manabu et al. since such a substrate material is explicitly taught for use in magneto-optic applications because of the improved adhesion between adjacent layers, as well as the excellent environmental resistance and high dimensional stability, properties explicitly desired by Sandstrom for substrates to be used in an air-incident recording application (*col. 2, line 19 bridging col. 4, line 48 and col. 7, lines 4 – 43*).

Regarding claims 7 - 9, Manabu et al. disclose relative amounts of the components meeting applicants' claimed limitations (*page 10, lines 20 – 23*).

Regarding claims 10 and 11, Manabu et al. disclose styrene materials meeting applicants' claimed Markush limitations (*paragraph bridging pages 6 – 7*).

Regarding claim 18, Manabu et al. disclose additives meeting applicants' claimed Markush limitations (*page 9, last paragraph: plasticizer*).

Regarding claim 21, Manabu et al. disclose intrinsic viscosity values meeting applicants' claimed limitations (*page 9, lines 1 – 6: where it is noted that  $[\eta]$  is proportional to the molecular weight, which is why Manabu et al. refers to it as the "average molecular weight"*).

Regarding independent claim 22, with regard to the transitional phrase "consisting essentially of", the basic and novel characteristics of the claimed invention are as defined in the Examiner's Answer on September 21, 2004. As such, the Examiner notes that Manabu et al. meets the claimed limitations.

Claim 29 is met for the reasons recited above regarding claim 21.

Regarding independent claim 30, Sandstrom discloses a method for retrieving data meeting applicants' claimed method limitations (*Figures and col. 1, line 9 bridging col. 4, line 67*).

Regarding claims 31 and 32, Sandstrom discloses passing at least a portion of the energy field to the data layer and back again (*Figure 1*), as well as a reflecting layer (*Figure 1, element 14*) between the substrate and the recording layer which reflects the light back before it is incident on the substrate (i.e. meeting the limitations of claim 32).

Claim 37 is met for the reasons recited above regarding claim 21.

Regarding claims 38 and 39, Sandstrom teaches controlling the radial tilt to within applicants' claimed range (17.45 mrad for 1° and 5.23 mrad for 0.3°). Furthermore, Sandstrom teaches that the stiffness/rigidity/thickness of the substrate can be varied to effect the trade off between resistance to tilt/axial deflection and weight in a substrate for data storage (*col. 2, line 20 bridging col. 4, line 25; col. 8, lines 43 – 58; col. 9, line 4 bridging col. 10, line 51; col. 11, line 31 bridging col. 12, line 2; and col. 12, lines 32 - 63*). Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to optimize an amount of tilt meeting applicants' claimed limitation by optimizing the results effective variables of stiffness, rigidity and/or thickness through routine experimentation in order to reach an optimal compromise between weight of the substrate (directly proportional to the thickness) and the tilt (influenced by the thickness). *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding independent claim 40, Sandstrom teaches forming optical or magneto-optical disks with the same substrate requirements (*col. 4, lines 38 – 42 and col. 13, lines 1 – 6*).

Regarding independent claim 41, Sandstrom teaches substrates meeting applicants' claimed thickness values (*col. 4, lines 38 – 48*).

5. Claims 2 – 6, 12 – 15, 19, 20, 23 – 28 and 33 – 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandstrom in view of Manabu as applied above, and further in view of Feuerherd et al. (U.S. Patent No. 5,130,356).

Sandstrom and Manabu et al. are relied upon as described above.

Regarding claim 2, while Sandstrom suggests surface features for optical disks (*col. 7, lines 4 – 14*), Sandstrom fails to explicitly teach using surface features on a disk for a magneto-optical recording medium.

However, Feuerherd et al. teach that the material taught by Manabu et al. not only possesses the excellent performance properties as disclosed by Manabu (*Abstract and Background section*), but is excellent in replication from a mold (which the Examiner notes is also noted by the Board of Patent Appeals and Interferences), which is necessary to form servo-tracking features meeting applicants' claimed limitations for precise and accurate control of the focusing means (*col. 17, lines 4 – 35*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Sandstrom in view of Manabu et al. to utilize surface features meeting applicants' claimed limitations as taught by

Art Unit: 1773

Feuerherd et al. since such features can be excellently formed using the claimed material and are necessary for precise and accurate control of the focusing means.

Regarding claims 3 - 6, while Manabu et al. disclose the claimed materials, the Examiner notes that Manabu et al. fail to provide sufficient guidance as to what weight average molecular weight should be utilized or whether a distribution of molecular weights should be utilized for the poly(arylene ether). However, Feuerherd et al. teach weight average molecular weights meeting applicants' claimed limitations, including the teaching of preferentially using the higher molecular weights, in order to obtain the desired advantageous performance characteristics (*col. 14, lines 16 – 31 and col. 15, lines 5 – 14*).

Regarding claims 12 – 15, 19 and 20, while Manabu et al. disclose using styrenic copolymers and mixtures thereof, Manabu et al. fail to provide sufficient guidance as to what percent distribution of the materials should be used. However, Feuerherd et al. teach mixtures meeting applicants' claimed composition and percentages in order to obtain the desired advantageous performance characteristics (*col. 15, lines 5 – 57 and col. 16, lines 27 – 45*).

Regarding claims 23 – 25, Feuerherd et al. is relied upon as per claims 3 – 6 above. The Examiner notes that the additive taught by Feuerherd et al. is not deemed to materially effect the basic and novel characteristic of the claimed invention since it does not effect the performance of the substrate material for use in air incident recording applications. Furthermore, the Examiner notes that the teachings of Feuerherd et al. are merely relied upon to provide guidance to one of ordinary skill in



the art as to suitable molecular weights for the various components and, as such, the “additive” of Feuerherd et al. is not required in the obviousness-rejection put forth above.

Regarding claims 26 – 28, Feuerherd et al. is relied upon as per claims 12 – 15, 19 and 20 above.

Regarding claims 33 and 34, Feuerherd et al. is relied upon as per claims 3 – 6 above.

Regarding claims 35 and 36, Feuerherd et al. is relied upon as per claims 12 – 15, 19 and 20 above.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandstrom in view of Manabu et al. as applied above, and further in view of Landin et al. (U.S. Patent No. 5,538,774).

Sandstrom and Manabu et al. are relied upon as described above.

Regarding claims 16 and 17, none of the above disclose adding fillers meeting applicants’ material and/or shape limitations.

However, Landin et al. teach that it is known to add fibrous and/or particulate filler meeting applicants’ claimed material and shape limitations in order to control the viscoelastic damping and strain energy ratio of the substrate (*col. 7, line 22 bridging col. 9, line 15*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the appellants’ invention to modify the device of Feuerherd et al. in view of

Sandstrom to use filler meeting applicants' claimed composition and size limitations as taught by Landin et al. in order to control the viscoelastic damping and strain energy ratio of the substrate.

### ***Response to Arguments***

**7. The rejection of claims 1 - 41 under 35 U.S.C § 103(a) – Sandstrom in view of various references**

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hirata et al. (U.S. Patent No. 6,127,017) teach a magneto-optic, optic or magnetic substrate required to possess good dimensional stability and smoothness for use in air-incident recording applications where a resin substrate material is particularly preferred due to the ability to mold servo-tracking features onto the surface thereof (*col. 1, line 9 bridging col. 4, line 62*). Muchnik (U.S. Patent No. 5,237,548) teach a polymeric substrate of any type (opaque or transparent) for air-incident magneto-optic applications which is explicitly taught to require flatness and high "dimensional stability" (*col. 3, line 12 bridging col. 4, line 38 and col. 6, line 50 bridging col. 7, line 16*). Muchnik further teaches that a typical magneto-optic "quad layer" is only ~175 nm in thickness (or 0.000175 mm) (*col. 4, lines 26 – 27*). For completeness, the

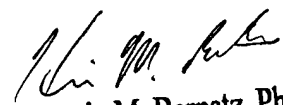
Examiner has included an English language translation of JP 63-13722, but notes that Manabu et al. is deemed the more pertinent prior art document.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
April 22, 2006

  
Kevin M. Bernatz, PhD  
Primary Examiner